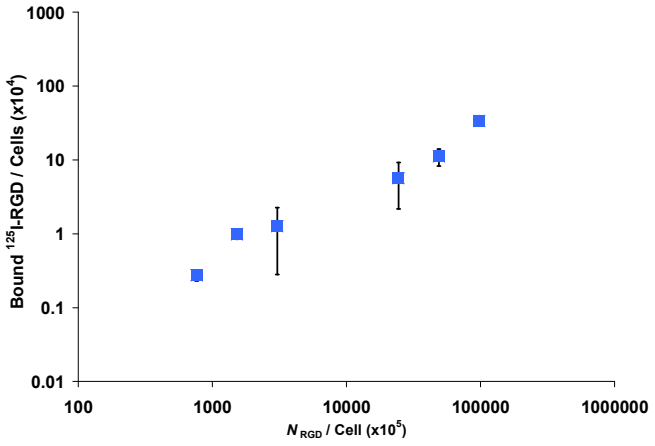
Supporting Information

A



B

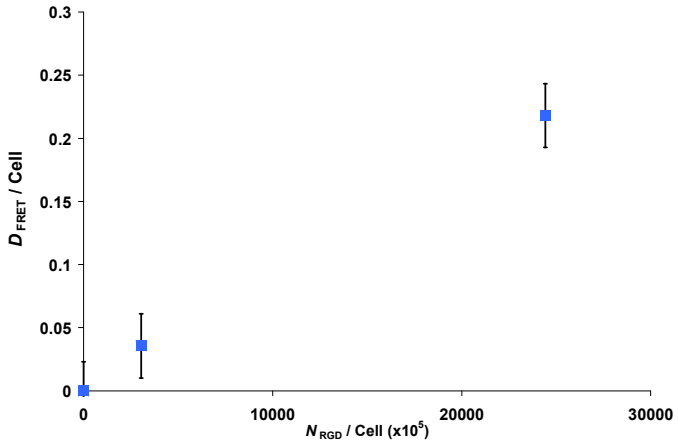


Figure S1

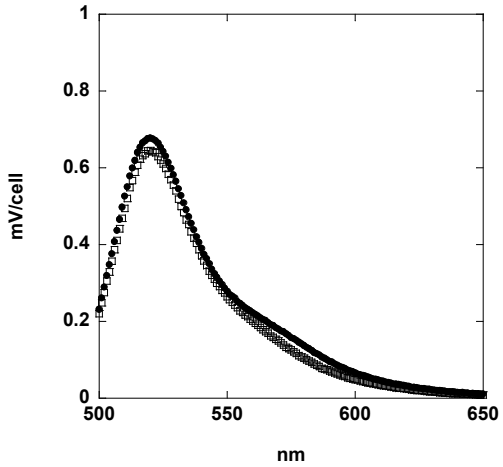


Figure S2

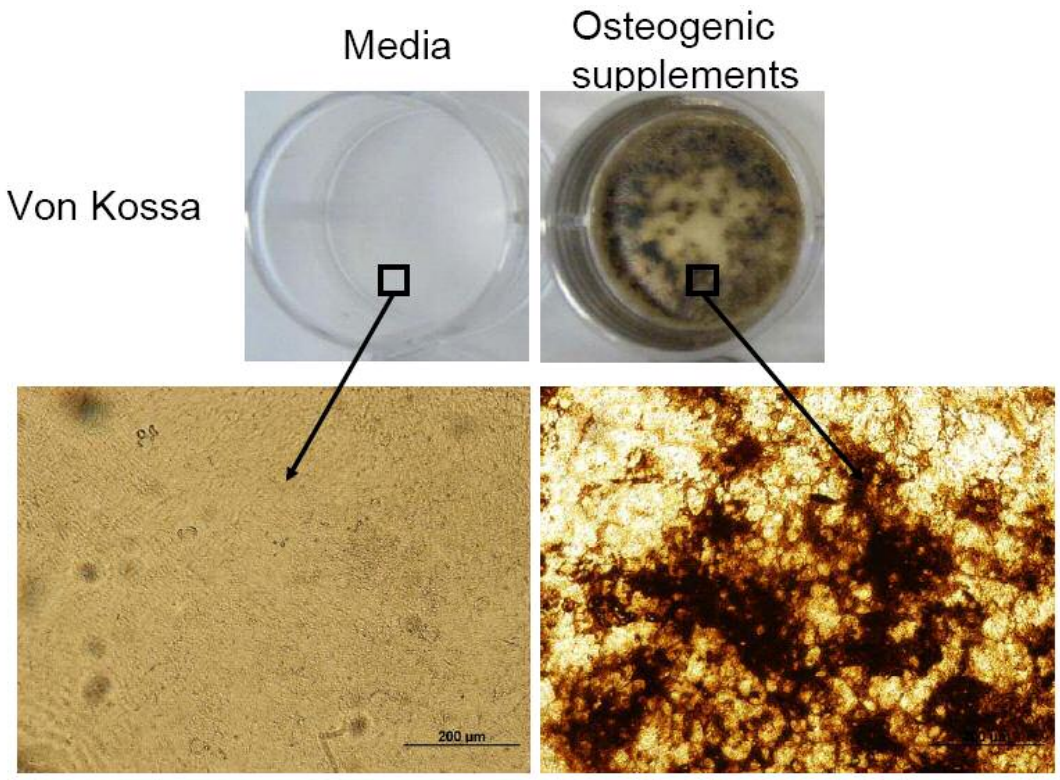


Figure S3

			MC3T3
substrate	integrin subunit		% of viable cell population
DS 8 RGD	α_v	CD 51	84.8
	α_5	CD 49e	4.8

Table S1

Figure S1. Standard curve correlating N_{bond} and D_{FRET} for D1 cells. (A) The number of RGD peptides bound to cells (N_{bond}) suspended in serum-free media after cells were mixed with I^{125}-G_4RGDASSKY modified alginate polymer with varying RGD peptide concentrations (N_{RGD}). (B) The degree of energy transfer (D_{FRET}) of fluorescein labeled cells (donor) encapsulated within rhodamine-G_4RGDASSKY (acceptor) of varying number of RGD peptides (N_{RGD}) was subsequently determined. From these results, the number of bonds formed per cell was correlated to D_{FRET}.

Figure S2. Donor emission intensity of D1 stem cells in 3D RGE-TAMRA modified alginate gels (*DS* 2), donor control (open squares), FRET condition (filled circles), degree of energy transfer is 0.05.

Figure S3. Osteogenic differentiation of D1 stem cells. Cells were cultured in osteogenic conditions to assess the capability of D1 cells to exhibit markers typical of osteoblasts. To assess osteogenic differentiation, cells were cultured in DMEM media supplemented with 50 μg/ml ascorbic acid and 10 mM β-glycerophosphate and subjected to Von Kossa staining to highlight mineral formation (day 21).

Table S1. Table of overall integrin expression, as percentage of viable cell population, of integrin subunits α_v and α_5 for MC3T3 cells encapsulated in RGD modified alginate substrates (*DS* 8, day 3). FACS data gated for viable cells only.